

Applicant(s): Dagnachew Birru  
Serial No.: 09/812,437  
Filed: March 20, 2001  
For: A LOW-COST HIGH-SPEED MULTIPLIER/ACCUMULATOR UNIT FOR DECISION FEEDBACK  
EQUALIZERS  
Art Unit: 2637  
Examiner: Goshtasbi, Jamsid

Attorney Docket No.: US010069

### **REMARKS/ARGUMENTS**

Reconsideration of the present application in view of the foregoing amendments and the following remarks is respectfully requested. Claims 1-19 are pending in the present application with claims 1, 5, 11, 12, 14, 17 and 18 being amended hereby. Support for the amendments to claims can be found in the application as originally filed, see, for example, page 8, lines 13-14.

The Office Action (1) found allowable subject matter with respect to claim 16; (2) rejected claims 1-19 under 35 U.S.C. 112, second paragraph, as being indefinite; (3) rejected claims 1, 12 and 18 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,611,857 to Lemonds et al. (hereinafter the "Lemonds reference"); and (4) rejected claims 2-11, 13-15, and 17 under 35 U.S.C. 103(a) as being unpatentable over the Lemonds reference in view of U.S. Patent No. 6,226,323 to Tan et al. (hereinafter the "Tan reference") and U.S. Patent No. 5,957,999 to Davis (hereinafter the "Davis reference").

With respect to item (1) identified above, Applicant respectfully expresses appreciation to the Examiner for the finding of allowable subject matter with respect to claim 16.

With respect to item (2) identified above, Applicant respectfully submits that the present pending claims effectively traverse the stated 112 rejection and accordingly respectfully requests reconsideration and withdrawal of such rejection.

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Regarding item (3) identified above, Applicant respectfully submits that present claims 1, 12 and 18 are patentable over the Lemonds reference at least because such reference fails to disclose or suggest a *decoder* device for receiving and *decoding an encoded, discrete digital level value* to be multiplied with a filter coefficient, and *implementing logic for generating control signals* according to said digital level value. Rather, in clear contrast, the Lemonds reference discloses an *encoder* for receiving inputs A and B (i.e., two 16 sixteen-bit signed or two seventeen-bit unsigned inputs) and for *generating a plurality of partial products* based on specified bits of one of the inputs (A or B). Applicant respectfully submits that decoding encoded values and generating control signals as recited by claims 1, 12 and 18 differs from encoding inputs and generating partial products as disclosed and/or suggested by the Lemonds reference. Applicant respectfully notes that in order to establish a prima facie case of obviousness, the prior art reference(s) must teach or suggest all of the claim limitation(s). M.P.E.P. § 2142. Accordingly, as the Lemonds reference fails to disclose or suggest all of the features associated with claims 1, 12 and 18, reconsideration and withdrawal of the stated rejection is respectfully requested.

Regarding item (4) identified above, Applicant respectfully submits that claims 2-11, 13-15, and 17, which claims depend either directly or indirectly from either claim 1 or claim 12, are patentable over the cited reference combination (i.e., the Lemonds reference, the Tan reference, and the Davis reference) at least for the reason noted above with respect to claims 1, 12 and 18. That is, neither the Tan reference, which reference was particularly cited against claim 2, nor the Davis reference, which reference was particularly cited against claim 6, overcome the noted deficiency of the Lemonds

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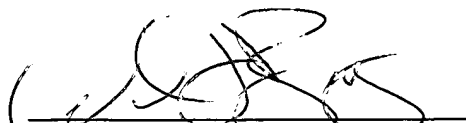
reference with respect to failing to disclose the decoder/decoding arrangement recited by claims 1, 12 and 18. Rather, the Tan reference distinctly discloses a decoder 320 having (i) a decision device 340 coupled to receive an input signal from a feedforward equalizer (FFE) 328 that has been summed with the output of a decision feedback equalizer (DFE) 322 in a summing junction 342, (ii) a path metrics module 344, and (iii) a path memory module 346. The decoder defined by Tan is intended to process information signals iteratively, tracing through a trellis diagram corresponding to the one used by the encoder. (col. 24, lns. 21-30). Tan's decoder is utilized to calculate the most likely path of each state reached by the encoder and to determine the distance between each of such paths and the received sequence in order to determine a quantity called a path metric. (col. 24, lns. 30-38). Applicant respectfully submits that Tan's decoder differs clearly from that of the present pending claims. Additionally, the recoding operation as provided by Davis' disclosed Booth module 18 (see, e.g., col. 3, lns. 43-64) likewise distinctly differs from the decoder/decoding feature of the present pending claims. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the stated rejection of claims 2-11, 13-15, and 17 based at least on the forgoing observations.

In sum, it is respectfully submitted that the all of the present claims are patentable over the references made of record in the present application and that this application is in condition for allowance. Accordingly, reconsideration and withdrawal of all rejections, and all objections of the claims, are respectfully requested.

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Respectfully submitted,

  
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